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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,212	02/13/2004	Sylvia Tidwell Scheuring	2736-126	2484
6449 7590 10/09/2007 ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			EXAMINER LEE, BENJAMIN WILLIAM	
			ART UNIT 3714	PAPER NUMBER
			NOTIFICATION DATE 10/09/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary

Application No.

10/777,212

Applicant(s)

SCHEURING ET AL.

Examiner

Benjamin W. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 12-16 and 24-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 17-23 and 39-41 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/06/2004; 12/09/2004; 06/17/2005; 08/25/2005; 06/08/2006; 10/25/2006; 05/02/2007.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, claims 1-11, 17-23, and 39-41 in the reply filed on 07/25/2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 22, 23, and 39-41 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Re claims 22 and 23: The claims are directed toward methods, which fall under the four statutory categories of invention (i.e. machine, manufacture, process, and composition of matter). However, the processes disclosed in the claim include the judicial exception of an abstract idea. The processes disclosed are mathematical algorithms. Numbers of students are determined and a calculation is performed (i.e. division). No physical transformation is present to establish a practical application of the abstract idea. Furthermore, the processes disclosed in the claims do not produce a useful, concrete, and tangible result. The claims merely result in a calculation (i.e.

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division) involving two numbers. There is no indication in the claims that the resulting number is used for any particular purpose or for producing a tangible result. Therefore, claims 22 and 23 are directed towards non-statutory subject matter.

Re claims 39-41. Claim 39 is directed toward a method, which falls under the four statutory categories of invention (i.e. machine, manufacture, process, and composition of matter). However, the process disclosed in the claim includes the judicial exception of an abstract idea. The claim is directed towards creating a learning map. No further limitations regarding the learning map are provided. Thus, a learning map may be reasonably interpreted to be a purely abstract idea since a map is the correspondence of elements in one set to elements in the same set or another set. No physical transformation is present to establish a practical application of the abstract idea. Furthermore, the process disclosed in the claim does not produce a useful, concrete, and tangible result. The claim merely results in the creation of a learning map or verifying the accuracy of a learning map. The limitations of the claim do not indicate that a learning map has any physical structure or that it is used in combination with something else that is otherwise tangible. Therefore, claim 39 is directed toward non-statutory subject matter. Claims 40 and 41 are dependent on claim 39 and do not resolve the deficiency of claim 39. Therefore, claims 40 and 41 are also directed towards non-statutory subject matter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Sheehan (U.S. Patent No. 6,144,838).

Re claim 1: Sheehan discloses a system comprising means for creating a learning map (see Fig. 1), which expresses learning target dependencies (see Fig. 1) and means for assessing whether the learning target dependencies expressed by the learning map are accurate (see col. 1, line 66 - col. 2, line 22; Sheehan discloses using testing to experimentally verify hypothesized skill mastery states).

Re claim 17: Sheehan discloses a method for creating a learning map, comprising specifying a set of learning targets (see Fig. 1; col. 12, line 58 - col. 13, line 55), specifying learning target dependency relationships for the specified learning targets (see Fig. 1; col. 12, line 58 - col. 13, line 55), creating or updating a conditional probability table based on the specified set of learning targets and the specified learning target dependency relationships (see Fig. 1; col. 12, line 58 - col. 13, line 55), and displaying an acyclic directed network (i.e. tree) corresponding to the conditional probability table (see Fig. 1), wherein the acyclic directed network comprises a node for each specified learning target (see Fig. 1) and one or more arcs for illustrating specified learning target dependency relationships (see Fig. 1).

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Re claim 18: Sheehan discloses a method for creating a learning map, comprising specifying a set of learning targets (see Fig. 1; col. 12, line 58 - col. 13, line 55), for each specified learning target, specifying the learning targets that are precursors or postcursors of the learning target, thereby specifying precursor/postcursor learning target pairs (see Fig. 1; col. 12, line 58 - col. 13, line 55), for each precursor/postcursor learning target pair, specifying a postcursor inference value and a precursor inference value (i.e. percent variance explained) (see Fig. 1; col. 12, line 58 - col. 13, line 55), and displaying an acyclic directed network (i.e. tree) that represents the precursor/postcursor relationships among the learning targets (see Fig. 1), wherein the acyclic directed network comprises a node for each specified learning target (see Fig. 1) and one or more arcs for illustrating specified learning target precursor/postcursor relationships (see Fig. 1).

Re claim 19: Sheehan inherently discloses prior to specifying a postcursor inference value and a precursor inference value for a precursor/postcursor learning target pair, the method comprises the step of determining the postcursor inference value and the precursor inference value. The values must be determined before they can be specified.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2, 9-11, 20-23, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheehan.

Re claims 2, 10, and 11: The teachings of Sheehan as applied to claim 1 above have been discussed.

However, Sheehan fails to explicitly disclose means for modifying the learning map, wherein the modifying means comprises means for modifying the learning map in response to the assessing means determining that one or more learning target dependencies expressed by the learning map are not accurate.

OFFICIAL NOTICE is taken that both the concept and advantages of modifying a document containing hypothesized values in response to obtaining the results of an experimental determination is old and well known in the art. Sheehan discloses using test results to verify hypothesized skill mastery states (see col. 1, line 66 - col. 2, line 22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the

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learning map based on the results of actual testing in order to improve the accuracy of the learning map based on real-world results.

Re claim 9: The teachings of Sheehan as applied to claim 1 above have been discussed.

However, Sheehan fails to explicitly disclose assessing whether the learning target dependencies expressed by the learning map are accurate includes means for assessing whether the learning target dependencies expressed by the learning map are accurate with respect to a first subset of students and means for assessing whether the learning target dependencies expressed by the learning map are accurate with respect to a second subset of students.

The addition of checking learning target dependencies against another set of students does not add any patentable significance over claim 1 since adding another check against another group of students is merely duplication of parts and a new and unexpected result is not produced. See MPEP § 2144.04(VI).

Re claims 20-23: The teachings of Sheehan as applied to claim 19 have been discussed above. Sheehan discloses using actual student results to verify hypothesized data ((see col. 1, line 66 - col. 2, line 22)

However, Sheehan fails to explicitly disclose the precursor/postcursor inference values are determined by dividing the number of students demonstrating mastery by the total number of participating students.

OFFICIAL NOTICE is taken that both the concept and advantages of using the results of student testing to determine probabilities related to mastery of subject material is old and well

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known in the art. Applying statistical analysis to a small sample set of students in order to provide overall probability is old and well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Sheehan by determining postcursor/precursor inference values by using the percentages of correct results of students in order to show the correlations between different subject areas.

Re claims 39-41: Sheehan discloses a method for creating learning maps comprising creating a first learning map and verifying the accuracy of the first learning map (see Fig. 1; col. 1, line 66 - col. 2, line 22).

However, Sheehan fails to explicitly disclose creating subsequent learning maps based on further subsets of students.

OFFICIAL NOTICE is taken that both the concept and advantages of revising a document based on further testing is old and well known in the art. Creating a hypothesis, experimentally testing the hypothesis, and modifying the hypothesis based on the testing is old and well known. Therefore, it would have been obvious to one of ordinary skill in the art to create further learning maps based on earlier inaccurate learning maps and new experimental data and to check the new learning maps against all students subsets in order to further increase the accuracy of the learning maps.

9. Claims 3-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheehan in view of Srinivasan et al. (U.S. Patent No. 5,852,822, hereinafter Srinivasan).

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The teachings of Sheehan as applied to claim 1 above have been discussed.

However, Sheehan fails to explicitly disclose modifying the learning map by merging redundant entries and splitting entries with more than one concept.

Srinivasan teaches merging nodes and splitting nodes (see col. 6, lines 8-21).

Therefore, in view of Srinivasan, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Sheehan to merge redundant entries and split large entries in order to optimize the performance and efficiency of the learning map. Eliminating redundant entries and limiting entries to one learning target keeps makes the tree easier to read and limiting the nodes to one learning target ensures that each learning target is independently related to other learning targets.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin W. Lee whose telephone number is 571-270-1346. The examiner can normally be reached on Mon - Fri (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on 571-272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

BWL
Benjamin W. Lee
October 1, 2007

Ronald Laneau
Ronald Laneau
Primary Examiner
Art Unit 3714

10/01/07